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3. A capsule with calyptra, enlarged.
4. Peristome teeth with adjacent cells of exothecium.
5, 6. Two stomata, phaneropore (60 to 75 μ in diameter, showing the confluence of the guard cells).
7. A leaf entire, showing the wavy edges of the lamellae. (Leaves are 2 to 4 mm. long).
a, b, c. Cells from near leaf base, middle and apex respectively. (Cells near base measure 14 to 16 μ wide, and 3 to 4 times as long as wide. The irregular, usually isodiametric, sometimes square cells about the middle of the leaf are 16 to 20 μ in diameter).
8. Section of costa near leaf base, showing the complete disappearance of the lamellae.
9. Leaf section about the middle.
10. A part of a stem section. (Stem is round-triangular, and about 350 μ in diameter).

CATHARINEA (PSILOPILUM) TSCHUCTSCHICA.

Carl Müller in Botanisches Centralblatt, Band 16 (1883), p. 93.

By John M. Holzinger.

"Dioicous; very close to *Psilopilum glabratum* (= *P. arcticum* Brid. *Vide*, Limpr. Laubm. **2**: 602), and similar to it, but larger, stouter, and blackish; stem leaves less closely appressed, open, longer, *very entire*, the areolation at base consisting of wide rectangular cells with thin walls (not of elongated irregular cells with delicately membranaceous walls); strongly convolute at the apex, ending in a short-incurved apex, the perichætial leaves very similar to the stem leaves (not longer, nor at base more membranaceous); capsule larger, less curved, pale, membranaceous, with longer teeth.

"Type locality: the peninsula Tschuctschica, St. Lorenz Bay, Aug. 12, 1881; Pooten, Aug. 28, 1881; Lütke Harbor, Aug., 1882.

"This plant differs at the first glance so considerably from *Catharinea glabrata* that it is at once felt to be different from it, and this partly because of larger cohering cushions, the diverging larger leaves, and the larger pale fruit with thin walls. The essential differentiating character however is in the basilar part of the leaf, and is quite distinctive, as above described. It is certainly an interesting addition to the arctic mossflora."

In this translation Catharinea glabrata is another name for *Psilopilum arcticum* Brid. Limpricht, in Laubmoose **2**: 602, writes for this plant *Psilopilum laevigatum* (Wahlenb.), citing curiously enough the following synonymy:

1. *Polytrichum glabratum* Wahlenb. (1803).
2. *Polytrichum laevigatum* Wahlenb. (1812).
3. *Catharinea glabrata* Hook. (1813).
4. *Catharinea leavigata* Brid. (1819).
5. *Psilopilum arcticum* Brid. (1827).
6. *Oligotrichum laevigatum* Bryol. Eur. (1844).
7. *Oligotrichum glabratum* Lindb. (1879).

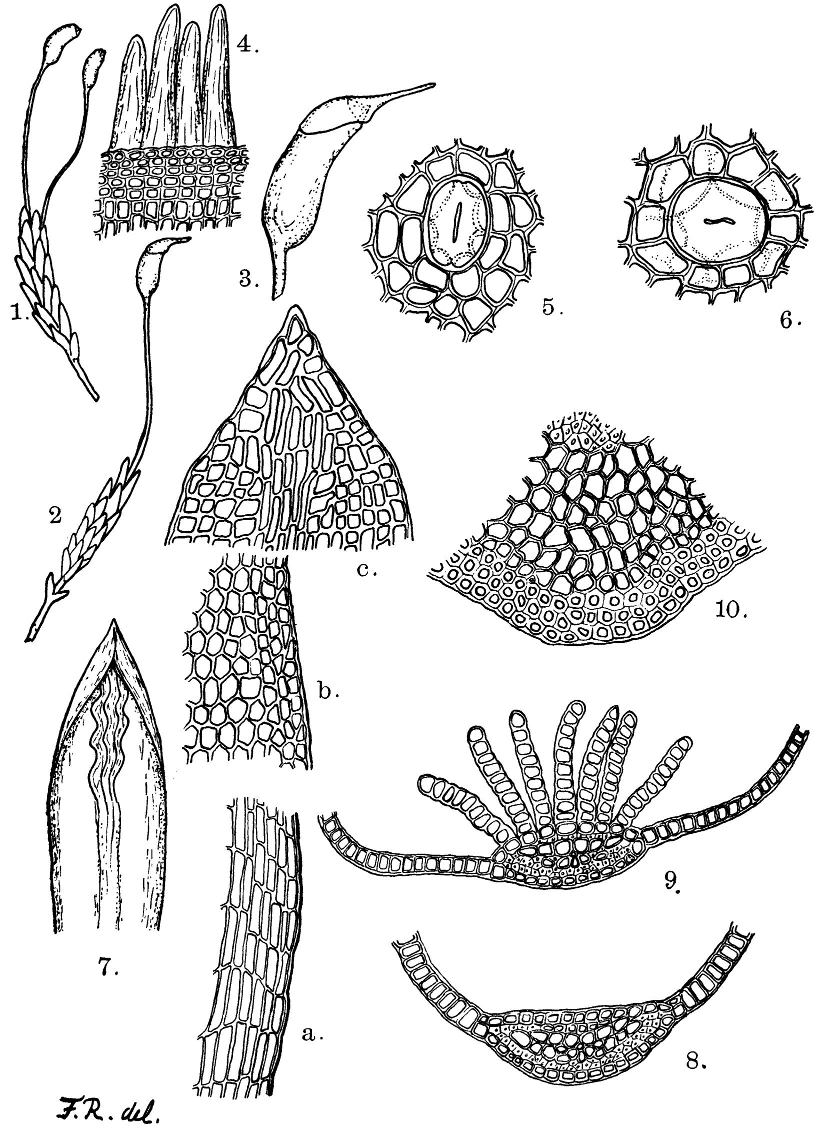

Plate VIII.—PSILOPILUM TSCHUCTSCHICUM, C. M.

(Explanation of Plate.)

1, 2. Two plants slightly enlarged. (Nat. size 1.6 to 2 cm., including seta and capsule).

Limpricht considers the genus *Psilopilum* well founded, and would therefore not refer the plants in question to either Catharinea or Oligotrichum. But in deciding upon the specific name, he considers the fact that Wahlenberg ignores the name imposed upon the plant by himself in 1803 sufficient ground to do so himself. Here Lindberg had the right view when in 1879 he restored Wahlenberg's first name, ranging the plant, however, under Oligotrichum. We cannot but agree with Limpricht in accepting the genus Psilopilum; but must differ from him when for so unacceptable a reason he rejects the oldest specific name. The *Psilopilum arcticum* of Lesq. & James' Manual should certainly be called *Psilopilum glabratum* (Wahlenb.). Carl Müller, following Hooker and the earlier view of Bridel, referred the plant to Catharinea, which explains the above synonyms. Naturally, in describing the second species, this same author wrote Catharinea (Psilopilum) Tschuctschica. But, under the influence of the other view this plant is simply *Psilopilum Tschuctschicum* C. Müll., as the author himself writes it in his Genera, p. 165.

The absence of the *crenulate margin* toward the apex of the leaf was the first intimation to the writer that this plant might be something different from *Psilopilum glabratum.* Next it was noted that the spores vary from 24 to 36 μ in diameter, while Limpricht records 18-22 μ as the size of the spores in the old species. Through the courtesy of Mr. W. R. Maxon the writer was able to see several specimens of authentic *Psilopilum glabratum.* And through the especial kindness of both Miss Josephine Tilden and Mr. W. R Maxon the original description of the second plant was made accessible. From this the above translation was made.

It will be noticed that Carl Müller emphasizes the distinctive character of the cells near the leaf base: these are *wider*, *rectangular* in the new species; narrower, ending in *oblique* walls, in the old species. In addition, the cells of the exothecium are different in the two species: these are elongated *throughout* the capsule in the new plant, but are mostly isodiametric, at least near the *middle* of the capsule, in the old. Finally, the leaf costa shows a characteristic difference: in the new plant there is a broad band of several rows of *stereid cells* under the dorsal band of thin walled large cells: this is absent or quite inconspicuous in leaf sections of the old species. Stem sections show no appreciable difference.

While it was quite reasonable, and indeed to be expected, that a plant occurring immediately on the west side of Bering Strait should also be found on its east side, the writer decided, if possible, to make sure this determination by actual comparison with type material. This he was able to do by the courtesy of Dr. S. Engler, who communicated a few plants of C. Müller's material from the herbarium of the Bot. Museum at Berlin. The comparison proves the North American plants typical *Psilopilum Tschuctschicum* in structure and size of parts. They show one unimportant difference, being on the whole a little more compact than the type.

Mr. Wm. R. Maxon, of the National Museum, furnishes the following interesting data regarding the type locality, first collections, etc.

"*Musci Tschuctschici* (auct. C. Müller) is a paper which appeared in three parts as follows :

Bot. Centralbl. **16**: 57-65. (1883).
" " **16**: 91-95. (1883).
" " **16**: 121-127. (1883).

A good many new species are described. The collection reported on in this paper was made under the auspices of the Bremen Natural History Society, by which the two brothers, Dr. Arthur Krause and Dr. Aurel Krause, were commissioned to make a journey of discovery to the Tschuktsches Peninsula (also spelled Chukches Peninsula). Accordingly these two explorers spent the summer of 1881 in the vicinity of St. Lawrence Bay, Emma Harbor, and Lütke Harbor, collecting both geological and botanical data and materials. The mosses of this expedition were entrusted for elaboration to Dr. Carl Müller of Halle, whose report on them appears under the above title."

The pocket containing the plants sent by Dr. Engler bears with the name the following data: "Peninsula Tschuctschica, St. Lorenz Bay, Geb. A. & A. Krause. 12 Aug. 1881."

Prof. J. B. Flett collected the plant in Alaska at two stations: first on the tundra near Rodney, on July 13, 1900; second, on the tundra 16 miles west of Nome City, on July 20, 1900. He kindly furnishes the following data: "Nome is in latitude about 64½° N. and longitude 165½° W. It is about 12 miles N. W. of Cape Nome. Rodney river is a creek about 20 miles N. W. of Nome City, along the coast." It thus appears that this American station is in nearly the same latitude as is the type locality, separated only by Bering Strait. But to Mr. R. S. Williams seems to belong the honor of being the first to find this plant in North America, if the plant collected by him on the "Left Bank of Klondike below Bonanza Creek, on June 18, 1899," is rightly referred here. The plants kindly communicated from the National Herbarium by Mr. W. R. Maxon are sterile, with leaves entire, but of different shape than in either of the two species of Psilopilum. The *rectangular* basal leaf cells bring it rather to Carl Müller's species; but they are much shorter. The lamellae also are much more scant. And it is not impossible that Mr. Williams' plants may prove to be a third species of Psilopilum. But this can not be established with certainty without more abundant and fruiting material, which so far is lacking. *Winona, Minn.*

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Mrs. J. D. Lowe, Noroton, Ct. Dicranum fulvum cfr, Dicranella heteromalla cfr, Anomodon attenuatus, Plagiothecium turfaceum cfr, Brachythecium oxycladon cfr, Eurhynchium strigosum robustum cfr, Polytrichum Ohioense.

Mrs. Carolyn W. Harris, Chilson Lake, Essex Co , New York. Theloschistes parietinus, Pyxine sorediata.